



Amendment to the Claims:

Listing of the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 and 2 (Cancelled)

Claim 3 (Currently Amended): A rapid dissolving reinforcing filler composition for organic systems comprising an effective amount of surface-modified, aerosol doped-pyrogenically produced oxides ~~doped by aerosol with aluminum or salts thereof and having a hydrophobic surface, wherein the dopants are selected from cerium, aluminum, potassium or salts or oxides thereof, wherein the pyrogenically produced~~ oxides are selected from the group consisting of SiO_2 , Al_2O_3 , TiO_2 , B_2O_3 , ZrO_2 , In_2O_3 , ZnO , Fe_2O_3 , Nb_2O_5 , V_2O_5 , WO_3 , SnO_2 and GeO_2 , and wherein the surface modification is a hydrophobic surface ~~results from coating of obtained by spraying~~ the pyrogenic oxides with one or several compounds selected from the following groups:

a) Organosilanes having either formula $(\text{RO})_3\text{Si}(\text{C}_n\text{H}_{2n+1})$ or $(\text{RO})_3\text{Si}(\text{C}_n\text{H}_{2n-1})$, wherein

R = alkyl, and

n = 1 – 20;

b) Organosilanes having either formula $\text{R}'_x (\text{RO})_y \text{Si}(\text{C}_n\text{H}_{2n+1})$ or $(\text{RO})_3\text{Si}(\text{C}_n\text{H}_{2n+1})$,

wherein

R = alkyl,

R' = alkyl,

R' = cycloalkyl

n = 1 – 20,

x+y = 3,

x = 1 or 2, and

y = 1 or 2;

c) Halogen organosilanes having either formula $X_3 Si(C_nH_{2n+1})$ or $X_3 Si(C_nH_{2n-1})$,

wherein

X = Cl or Br, and

n = 1 – 20;

d) Halogen organosilanes having either formula $X_2 (R') Si(C_nH_{2n+1})$ or

$X_2 (R') Si(C_nH_{2n-1})$, wherein

X = Cl or Br

R' = alkyl or cycloalkyl, and

n = 1 – 20;

e) Halogen organosilanes having formula $X (R')_2 Si(C_nH_{2n+1})$ or

$X (R')_2 Si(C_nH_{2n-1})$, wherein

X = Cl or Br;

R' = alkyl or cycloalkyl, and

n = 1 – 20;

f) Organosilanes having the formula $(RO)_3Si(CH_2)_m-R'$

R = alkyl,

m = 0 or 1-20, and

R' = methyl-, aryl-, $-C_6H_5$, substituted phenyl groups,

$-C_4F_9$, $OCF_2-CHF-CF_3$, $-C_6F_{13}$, $-O-CF_2-CHF_2$,

$-NH_2$, $=N_3$, $-SCN$, $-CH=CH_2$, $-NH-CH_2-CH_2-NH_2$,

$-N-(CH_2-CH_2-CH_2NH_2)_2$,

$-OOC(CH_3)C=CH_2$,

$-OCH_2-CH(O)CH_2$,

$-NH-CO-N-CO-(CH_2)_5$,

$-NH-COO-CH_3$, $-NH-COO-CH_2-CH_3$, $-NH-(CH_2)_3Si(OR)_3$,

$-SH$ or

$-NR'R''R'''$, wherein R' = alkyl, or aryl; R'' = H, alkyl, aryl; and R''' = H, alkyl, aryl,

benzyl, or $C_2H_4N(R'''')_2$, wherein R'''' = H, or alkyl;

g) Organosilanes having the formula $(R'')_x(RO)_ySi(CH_2)_m-R'$, wherein

R'' = alkyl or cycloalkyl,

x+y = 2,

x = 1 or 2,

y = 1 or 2,

m = 0 or 1 to 20, and

R' = methyl-, aryl, -C₆H₅, substituted phenyl groups,

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

-OOC (CH₃)C = CH₂,

-OCH₂-CH(O) CH₂,

-NH-CO-N-CO-(CH₂)₅,

-NH-COO-CH₃, -NH-COO-CH₂-CH₃, -NH-(CH₂)₃Si(OR)₃,

-SH or

-NR'R''R''', wherein R' = alkyl or aryl; R'' = H,

alkyl, or aryl; and R''' = H, alkyl, aryl, benzyl, or

C₂H₄N(R''')₂, wherein R''' = H, or alkyl ;

h) Halogen organosilanes having the formula X₃Si (CH₂)_m-R', wherein

X = Cl or Br,

m = 0 or 1 – 20,

R' = methyl-, aryl, -C₆H₅, substituted phenyl groups

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

$-\text{OOC}(\text{CH}_3)\text{C}=\text{CH}_2$,
 $-\text{OCH}_2-\text{CH}(\text{O})\text{CH}_2$,
 $-\text{NH}-\text{CO}-\text{N}-\text{CO}-(\text{CH}_2)_5$,
 $-\text{NH}-\text{COO}-\text{CH}_3$, $-\text{NH}-\text{COO}-\text{CH}_2-\text{CH}_3$, $-\text{NH}-(\text{CH}_2)_3\text{Si}(\text{OR})_3$, or
 $-\text{SH}$;

i) Halogen organosilanes having the formula $(\text{R})\text{X}_2\text{Si}(\text{CH}_2)_m\text{R}'$, wherein

$\text{X} = \text{Cl or Br}$,

$\text{R} = \text{alkyl such as methyl-, ethyl-, or propyl-}$,

$m = 0 \text{ or } 1 - 20$, and

$\text{R}' = \text{methyl-, aryl-, } -\text{C}_6\text{H}_5, \text{ substituted phenyl groups,}$

$-\text{C}_4\text{F}_9$, $-\text{OCF}_2-\text{CHF}-\text{CF}_3$, $-\text{C}_6\text{F}_{13}$, $-\text{O}-\text{CF}_2-\text{CHF}_2$,

$-\text{NH}_2$, $-\text{N}_3$, SCN , $-\text{CH}=\text{CH}_2$, $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{NH}_2$,

$-\text{N}-(\text{CH}_2-\text{CH}_2-\text{NH}_2)_2$,

$-\text{OOC}(\text{CH}_3)\text{C}=\text{CH}_2$,

$-\text{OCH}_2-\text{CH}(\text{O})\text{CH}_2$,

$-\text{NH}-\text{CO}-\text{N}-\text{CO}-(\text{CH}_2)_5$,

$-\text{NH}-\text{COO}-\text{CH}_3$, $-\text{NH}-\text{COO}-\text{CH}_2-\text{CH}_3$,

$-\text{NH}-(\text{CH}_2)_3\text{Si}(\text{OR})_3$ or

$-\text{SH}$;

(j) Halogen organosilanes having the formula $(\text{R})_2\text{X Si}(\text{CH}_2)_m\text{R}'$, wherein

X = Cl or Br,

R = alkyl,

m = 0 or 1 – 20, and

R' = methyl-, aryl-, -C₆H₅, substituted phenyl groups,

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

-OOC (CH₃)C = CH₂,

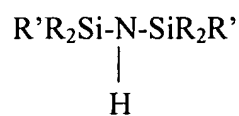
-OCH₂-CH(O) CH₂,

-NH-CO-N-CO-(CH₂)₅,

-NH-COO-CH₃, -NH-COO-CH₂-CH₃, -NH-(CH₂)₃Si(OR)₃ or

-SH;

(k) Silazanes having the formula

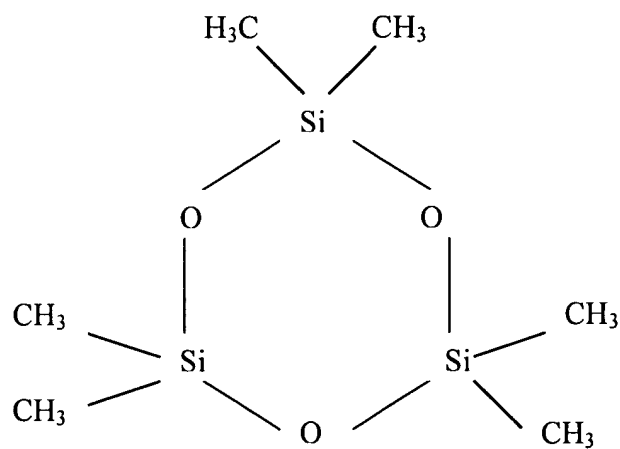


wherein R = alkyl, and

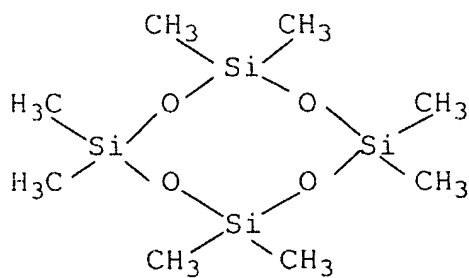
R' = alkyl or vinyl; or

(l) Cyclic polysiloxanes D 3, D 4 or D 5,

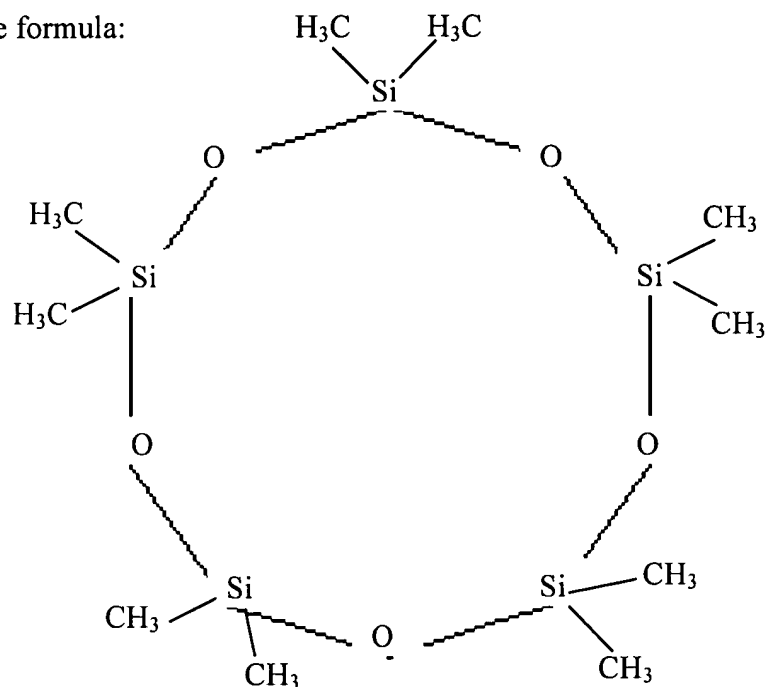
where 1) D3 has the formula:



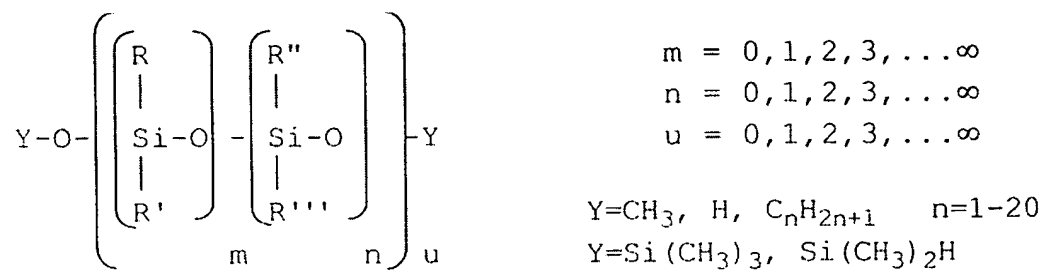
2) D4 has the formula:



and 3) D5 has the formula:



m) Polysiloxanes or silicone oils having any one of the formula



, $Si(CH_3)_2OH$, $Si(CH_3)_2(OCH_3)$ or

$Si(CH_3)_2(C_nH_{2n+1})$, wherein $n=1-20$,

wherein,

$R = \text{alkyl, aryl, } (CH_2)_n-NH_2 \text{ or } H,$

$R' = \text{alkyl, aryl, } (CH_2)_n-NH_2 \text{ or } H,$

$R'' = \text{alkyl, aryl, } (CH_2)_n\text{-NH}_2 \text{ or H,}$

$R''' = \text{alkyl, aryl, } (CH_2)_n\text{-NH}_2 \text{ or H.}$

Claim 4 (Currently amended): A method of producing aerosol doped, surface-modified pyrogenically produced oxides, comprising placing aerosol doped-pyrogenically produced oxides ~~doped by aerosol~~ in a suitable mixing container, spraying the oxides with water and/or acid and then spraying the oxides under intensive mixing with the surface-modification reagent or a mixture of several surface-modification reagents, wherein to form the aerosol doped, surface-modified, pyrogenically produced oxides ~~doped by aerosol and having a hydrophobic surface~~, wherein the dopants are selected from cerium, aluminum, potassium, or salts or oxides thereof, wherein the oxides are selected from the group consisting of SiO_2 , Al_2O_3 , TiO_2 , B_2O_3 , ZrO_2 , In_2O_3 , ZnO , Fe_2O_3 , Nb_2O_5 , V_2O_5 , WO_3 , SnO_2 and GeO_2 , wherein the surface-modification reagent or a mixture of several surface-modification reagents are ~~the hydrophobic surface results from coating of the pyrogenic oxides with one or several compounds~~ selected from the following groups:

a) Organosilanes having either formula $(RO)_3Si(C_nH_{2n+1})$ or $(RO)_3Si(C_nH_{2n-1})$, wherein

$R = \text{alkyl, and}$

$n = 1 - 20;$

b) Organosilanes having either formula $R'_x(RO)_ySi(C_nH_{2n+1})$ or $(RO)_3Si(C_nH_{2n+1})$,

wherein

R = alkyl,

R' = alkyl,

R' = cycloalkyl

n = 1 – 20,

x+y = 3,

x = 1 or 2, and

y = 1 or 2;

c) Halogen organosilanes having either formula $X_3 \text{ Si}(\text{C}_n\text{H}_{2n+1})$ or $X_3 \text{ Si}(\text{C}_n\text{H}_{2n-1})$,

wherein

X = Cl or Br, and

n = 1 – 20;

d) Halogen organosilanes having either formula $X_2 (\text{R}') \text{ Si}(\text{C}_n\text{H}_{2n+1})$ or

$X_2 (\text{R}') \text{ Si}(\text{C}_n\text{H}_{2n-1})$, wherein

X = Cl or Br

R' = alkyl or cycloalkyl, and

n = 1 – 20;

e) Halogen organosilanes having formula $X (\text{R}')_2 \text{ Si}(\text{C}_n\text{H}_{2n+1})$ or

$X (\text{R}')_2 \text{ Si}(\text{C}_n\text{H}_{2n-1})$, wherein

X = Cl or Br;

R' = alkyl or cycloalkyl, and

n = 1 – 20;

f) Organosilanes having the formula $(\text{RO})_3\text{Si}(\text{CH}_2)_m\text{-R}'$

R = alkyl,

m = 0 or 1-20, and

R' = methyl-, aryl-, $\text{-C}_6\text{H}_5$, substituted phenyl groups,

$\text{-C}_4\text{F}_9$, $\text{OCF}_2\text{-CHF-CF}_3$, $\text{-C}_6\text{F}_{13}$, $\text{-O-CF}_2\text{-CHF}_2$,

-NH_2 , =N_3 , -SCN , -CH=CH_2 , $\text{-NH-CH}_2\text{-CH}_2\text{-NH}_2$,

$\text{-N-(CH}_2\text{-CH}_2\text{-CH}_2\text{NH}_2)_2$,

$\text{-OOC(CH}_3\text{)C=CH}_2$,

$\text{-OCH}_2\text{-CH(O)CH}_2$,

$\text{-NH-CO-N-CO-(CH}_2\text{)}_5$,

-NH-COO-CH_3 , $\text{-NH-COO-CH}_2\text{-CH}_3$, $\text{-NH-(CH}_2\text{)}_3\text{Si(OR)}_3$,

-SH or

-NR'R''R'''_2 , wherein R' = alkyl, or aryl; R'' = H, alkyl, aryl; and R''' = H, alkyl, aryl,

benzyl, or $\text{C}_2\text{H}_4\text{N(R'''')}_2$, wherein R'''' = H, or alkyl;

g) Organosilanes having the formula $(\text{R}'')_x(\text{RO})_y\text{Si}(\text{CH}_2)_m\text{-R}'$, wherein

R'' = alkyl or cycloalkyl,

x+y = 2,

x = 1 or 2,

y = 1 or 2,

m = 0 or 1 to 20, and

R' = methyl-, aryl, -C₆H₅, substituted phenyl groups,

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

-OOC (CH₃)C = CH₂,

-OCH₂-CH(O) CH₂,

-NH-CO-N-CO-(CH₂)₅,

-NH-COO-CH₃, -NH-COO-CH₂-CH₃, -NH-(CH₂)₃Si(OR)₃,

-SH or

-NR'R''R''', wherein R' = alkyl or aryl; R'' = H,

alkyl, or aryl; and R''' = H, alkyl, aryl, benzyl, or

C₂H₄N(R'''')₂, wherein R'''' = H, or alkyl ;

h) Halogen organosilanes having the formula X₃Si (CH₂)_m-R', wherein

X = Cl or Br,

m = 0 or 1 – 20,

R' = methyl-, aryl, -C₆H₅, substituted phenyl groups

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

$-\text{OOC}(\text{CH}_3)\text{C}=\text{CH}_2$,
 $-\text{OCH}_2-\text{CH}(\text{O})\text{CH}_2$,
 $-\text{NH}-\text{CO}-\text{N}-\text{CO}-(\text{CH}_2)_5$,
 $-\text{NH}-\text{COO}-\text{CH}_3$, $-\text{NH}-\text{COO}-\text{CH}_2-\text{CH}_3$, $-\text{NH}-(\text{CH}_2)_3\text{Si}(\text{OR})_3$, or
 $-\text{SH}$;

i) Halogen organosilanes having the formula $(\text{R})\text{X}_2\text{Si}(\text{CH}_2)_m\text{R}'$, wherein

$\text{X} = \text{Cl}$ or Br ,

$\text{R} =$ alkyl such as methyl-, ethyl-, or propyl-,

$m = 0$ or $1 - 20$, and

$\text{R}' =$ methyl-, aryl-, $-\text{C}_6\text{H}_5$, substituted phenyl groups,

$-\text{C}_4\text{F}_9$, $-\text{OCF}_2-\text{CHF}-\text{CF}_3$, $-\text{C}_6\text{F}_{13}$, $-\text{O}-\text{CF}_2-\text{CHF}_2$,

$-\text{NH}_2$, $-\text{N}_3$, SCN , $-\text{CH}=\text{CH}_2$, $-\text{NH}-\text{CH}_2-\text{CH}_2-\text{NH}_2$,

$-\text{N}-(\text{CH}_2-\text{CH}_2-\text{NH}_2)_2$,

$-\text{OOC}(\text{CH}_3)\text{C}=\text{CH}_2$,

$-\text{OCH}_2-\text{CH}(\text{O})\text{CH}_2$,

$-\text{NH}-\text{CO}-\text{N}-\text{CO}-(\text{CH}_2)_5$,

$-\text{NH}-\text{COO}-\text{CH}_3$, $-\text{NH}-\text{COO}-\text{CH}_2-\text{CH}_3$,

$-\text{NH}-(\text{CH}_2)_3\text{Si}(\text{OR})_3$ or

$-\text{SH}$;

(j) Halogen organosilanes having the formula $(\text{R})_2\text{X Si}(\text{CH}_2)_m\text{R}'$, wherein

X = Cl or Br,

R = alkyl,

m = 0 or 1 – 20, and

R' = methyl-, aryl-, -C₆H₅, substituted phenyl groups,

-C₄F₉, -OCF₂-CHF-CF₃, -C₆F₁₃, -O-CF₂-CHF₂,

-NH₂, -N₃, SCN, -CH=CH₂, -NH-CH₂-CH₂-NH₂,

-N-(CH₂-CH₂-NH₂)₂,

-OOC (CH₃)C = CH₂,

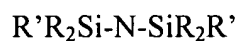
-OCH₂-CH(O) CH₂,

-NH-CO-N-CO-(CH₂)₅,

-NH-COO-CH₃, -NH-COO-CH₂-CH₃, -NH-(CH₂)₃Si(OR)₃ or

-SH;

(k) Silazanes having the formula



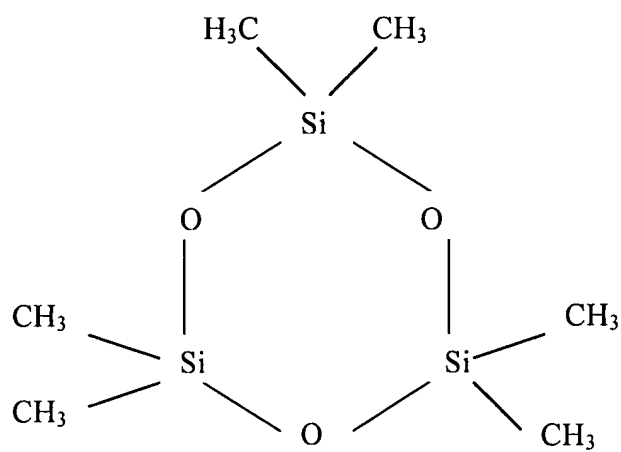
H

wherein R = alkyl, and

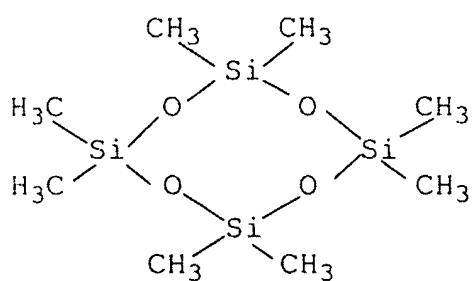
R' = alkyl or vinyl; or

(l) Cyclic polysiloxanes D 3, D 4 or D 5,

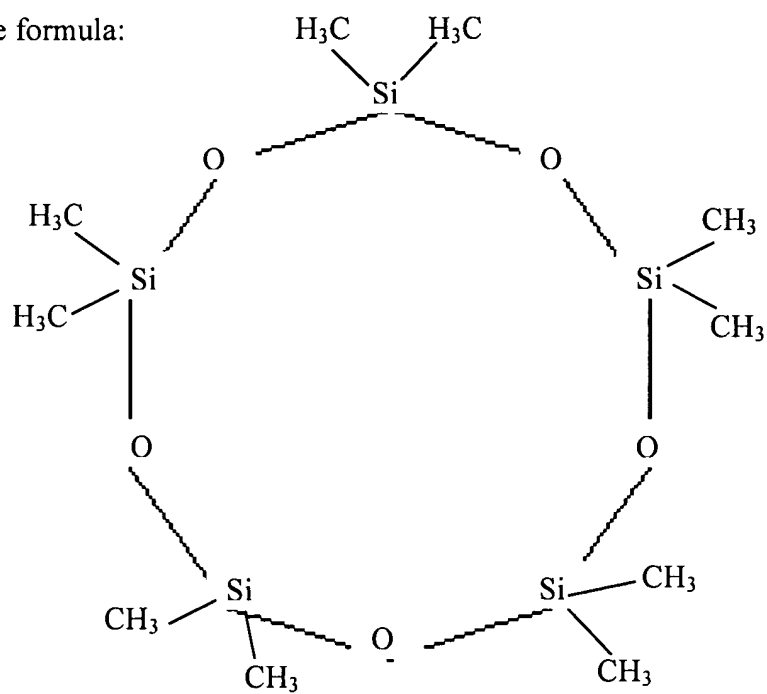
where 1) D3 has the formula:



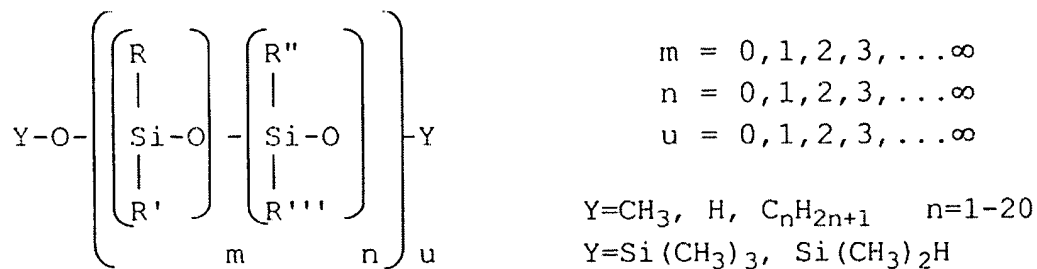
2) D4 has the formula:



and 3) D5 has the formula:



m) Polysiloxanes or silicone oils having any one of the formula



, $Si(CH_3)_2OH$, $Si(CH_3)_2(OCH_3)$ or

$Si(CH_3)_2(C_nH_{2n+1})$, wherein $n=1-20$,

wherein,

R = alkyl, aryl, $(CH_2)_n-NH_2$ or H ,

R' = alkyl, aryl, $(CH_2)_n-NH_2$ or H ,

R'' = alkyl, aryl, $(CH_2)_n-NH_2$ or H ,

R''' = alkyl, aryl, $(CH_2)_n-NH_2$ or H .

Claim 5 (Previously presented): In a reinforcing filler composition wherein the improvement comprises the surface-modified oxides according to claim 3 as reinforcing filler.

Claim 6 (Cancelled)

Claim 7 (Currently amended) The method of claim 4 further comprising re-mixing ~~at~~ for 15 to 30 minutes and tempering at a temperature of 100 to 400 °C for a period of 1 to 6 hours.

Claim 8 (Previously presented) The surface-modified, pyrogenically produced oxides according to claim 3 wherein the cyclic polysiloxanes is D 4.

Claims 9 -12 (Cancelled)